



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D6005-128
Job Sheet 187188



5247737

Part No: D6005-128

Job Qty: 28 ea

Part Name: Crosstube Material



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 11/28/18

Job Tracking No:

Created By: Chantal Lavoie

Due Date: 5/27/20

Description:

Type: Stock

Note: DWG REV B

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Purchasing	28 pcs		5/27/20	0.00	0.00	Purchasing		603 JAN 15 2020
110	Packaging	28 pcs		5/27/20	0.00	0.00	Packaging2		603 JAN 15 2020
120	QC	28 pcs		5/27/20	0.00	0.00	QC18		JAN 16 2020
140	Packaging	28 pcs		5/27/20	0.00	0.00	Packaging3-2	DAS	MD 2020/01/16
150	QC21-SA	28 Ea		5/27/20	0.00	0.00	QC21	21	JAN 17 2020

Part Op 100 - Issue P/O: 41889 a) Order as per Dwg D6005 b) Material: 17075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11) seamless aluminum tube e) Material cert's is required

110 - Ensure material certification is attached

120 - Ensure Material certification comply to Dwg

x28
NOV 28 2018
DAS 13 9-89

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6005-128P	Crosstube Material	28 pcs (1 ea)	100-Purchasing	5247736

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Purchasing	D6005-128P	28	0	0

Part Specifications

Specifications could not be found.



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Plex 11/28/18 1:41 PM dart.lavoie.chantal

Container No: S247737



Part: D6005-128

Job No: 187188

Serial No/Batch: S247737

Revision:

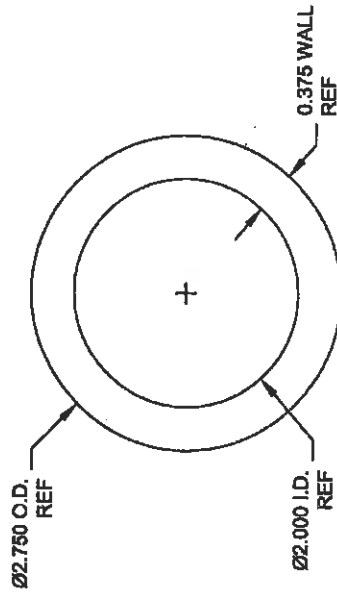
Inspector:

Exp Date:

Instructions: Various STC's

Date: 01/15/20

SPECIFICATION CONTROL DRAWING



NOTES

1) D6005-XXX CROSSTUBE

LENGTH

WHERE XXX IS LENGTH IN INCHES
EG. 126" LONG TUBE: D6005-126

2) MATERIAL: 2.750 OD X 0.375 WALL 7075-T8/B511 SEAMLESS ALUMINUM TUBE
PER-ASTM B210 OR WW-1-700/7 OR QQ-A-225/9 OR QQ-A-300/11
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi
MINIMUM YIELD TENSILE STRENGTH = 66 ksi

3) TOLERANCES ARE AS FOLLOWS:

O.D.: ± 0.008 MEAN (± 0.012 INCLUDING ECCENTRICITY)

WALL: ± 0.015 MEAN (± 0.038 INCLUDING ECCENTRICITY)

LENGTH: $XXX \pm 0.125/-0.000$

STRAIGHTNESS: $0.010"$ DEVIATION / 12" LENGTH

4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO $0.005"$ MAY BE BLENDIED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

RELEASED
13/1/17
P&R Sec 41-577

REV.	DESCRIPTION	BY	DATE
A	O.D. TOL. NOW 0.008 WAS 0.006, ADD ASTM B210	CP	12.10.28
B	NEW ISSUE	CP	02.11.17
DESIGN	DART AEROSPACE LTD		
DRAWN	HAWKESBURY, ONTARIO, CANADA		
CHECKED			
MFG. APPR.	D6005		
APPROVED	TITLE		
DE APPR.	CROSSTUBE MATERIAL		
DATE	12.10.29		
	SCALE		
	NTS		

COPYRIGHT © 2000 BY DART AEROSPACE LTD.
THIS DOCUMENT IS UNCLASSIFIED AND IS AVAILABLE TO THE EXTENT PERMITTED BY THE
APPLICABLE CANADIAN LAWS AND REGULATIONS.

W10: 187188

NOV 28 2018

DAS
82
9-89



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041884**



Supplier: ALU001-VU
Aluminiumwerk Unna AG
630-3033 SOUTH PARKER RD
AURORA, CO 80014 USA
Phone: 303 755 5672
Fax: 303 755 5936

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: PO041884
PO Date: 11/28/18
Due Date: 11/29/19
Purchase Order Revision:
Revision Date: 8/1/19
Ship-To Contact: Lavoie, Chantal
Phone: 613-623-5200 Ext: 242
Fax: 613-632-1053
clavoie@dartaero.com
Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Drawing	Supplier Part No	Item No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	187188	D6005-128P	D6008	36744		Crosstube Material AS PER DWG D6005 REV. B MAT'L: 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11, SEAMLESS TUBE, MAT'L CERTIFICATION REQUIRED	Firmed	-	11/29/19	19 pcs	0 pcs	19 pcs	\$505.00/pcs	\$9,595.00

19
pcs
GCB

JAN 15 2020

DAS
32
9-89

Line Item Note EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE OUTSIDE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS

Grand Total: \$9,595.00

Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Procurement Quality Clauses
A005 RIGHT OF ENTRY
A007 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION MAINTAINED BY SUPPLIER)
A012 CHEMICAL AND PHYSICAL TEST REPORTS
A016 PERSONNEL QUALIFICATION
A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)
A026 CERTIFICATION OF MATERIAL CONFORMANCE
A041 QUALITY MANAGEMENT SYSTEM
A042 DART NOTIFICATION BY SUPPLIER
A043 RETENTION OF QUALITY DOCUMENT

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Handwritten signature



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER
P0041884

Supplier: ALU001-VU
Aluminiumwerk Unna AG
630-3033 SOUTH PARKER RD
AURORA, CO 80014 USA
Phone: 303 755 5672
Fax: 303 755 5936

PO No: P0041884

PO Date: 11/28/18

Due Date: 5/27/20

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

E-MAILED
NOV 29 2018

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments:

Special Comments:													
Items													
Line Item	Job	Part	Supplier Part No	Item No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	187188	D6005-128P	36744		Crosstube Material	Filmed	-	5/27/2020	28 pcs	0 pcs	28 pcs	\$505.00/pcs	\$14,140.00
					AS PER DWG D6005 REV. B								
					MAT'L: 7075-T6/T6511 (WW-T-7007 OR QQ-A-2259 OR QQ-A-200/11, SEAMLESS TUBE, MAT'L CERTIFICATION REQUIRED								
Line Item Note:													
EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE OUTSIDE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES,NICKS,OR DENTS													
Grand Total:												\$14,140.00	

(Handwritten initials)



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER
PO041884

Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Procurement Quality Clauses

A005 RIGHT OF ENTRY

A007 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION MAINTAINED BY SUPPLIER)

A012 CHEMICAL AND PHYSICAL TEST REPORTS

A016 PERSONNEL QUALIFICATION

A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A041 QUALITY MANAGEMENT SYSTEM

A042 DART NOTIFICATION BY SUPPLIER

A043 RETENTION OF QUALITY DOCUMENT

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

A handwritten signature in black ink, appearing to be "CL" or similar, located to the right of the Procurement Quality Clauses list.

Plex 11/28/18 1:47 PM dart.lavoie.chantal

Packing List Aluminiumwerk Unna AG

Page 1 of 1



ALUnna

Order		Article		Box marking	
Commission-No.:	74549	Outer Diameter (Inch):	2,750	DART AEROSPACE P.O. 041884/ D6005-128 MADE IN GERMANY DEST.: HAWKESBURY ONT, CANADA	
Item No.:	100	Inner Diameter (Inch):	2,000		
Customer PO.:	PO041884	Wall (Inch):	0,375		
Customer:	Dart Aerospace	Length (Feet):	10,67		
Date:	23.10.2019	Drawing:	69,85 x 9,52		

Comments: We hereby declare, that the wooden packing material are totally free from bark and apparently free from live plant pests.

Box No.	Box dimensions				Total number of pieces and weights				Cast/Heat-Groups in the box	
	length (Inch)	Width (Inch)	Height (Inch)	Volume (cbm)	Pieces	Net lbs	Tare lbs	Gross lbs	Position	Cast-No.
1	151,575	22,441	22,441	1,251	19	692,251	240,304	932,554	19	1726
Total:				1,251	19	692,251	240,304	932,554	19	807235

DAS
82
9-89

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

Kunde:
Client:

Dart Aerospace Ltd.
1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Zeugnisnummer:

2346/19

Cert No.: / No. du certificat:

P0041884

Bestellnummer:

Order No. / No. de commande

Auftrag:

74549/100

Our Reference/Notre Reference:

Produkt:

Product / Produit:

Spezifikation:

Specification:

Werkstoff:

Alloy/Alliage:

Abmessung

Size / Dimension

Kennzeichnung

Marking/Marquage:

AMS - QQ - A - 200/11A; Spezifikation Dart Aerospace D6005

7075

2,750 INCH x 2,000 INCH x 0,375 INCH
D6005-128

Zustand:

Temper/Etat

T 6511

x 128,000 INCH

ALUnna - Cert No. 2346/19 - AMS-QQ-A-200/11(A) - 2.750" OD x 0.375" WT - 7075 - T 6511 - Cast No. 1726 - Heat Lot No. 807235 -
ALUnna Order Confirmation No. 74549/100

Lieferung

Delivered Material / Matériel délivré:

pcs.

19

lbs

692

Country of Manufacture: Germany

Products are in accordance with applicable RoHS

Other elements
each max. 0,05 %, total 0,15 %

1. Chemische Analyse

Chemical Analysis / analyse chimique

Charge/ min. Cast No. max.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni	Na
	0,40	0,50	1,2 2,0	0,30	2,1 2,9	0,18 0,28	5,1 6,1	0,20						
1726/19	0,234	0,260	1,495	0,186	2,430	0,195	5,670	0,033	0,0138	0,0164	0,0010	0,0010	0,0068	0,0001

Hydrogen content: 0,12

ccm/100 g Al Elements without indication < 0,01 % country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Heat Lot No.
	77,0	66,0	7,0			
1	81,9	71,2	12,0			807235
2	80,8	73,0	12,7			

RMS: outside 25 - max. 12,5 µ"

**Ergebnis der
Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

DAS
82
9-89

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: D6005-128P
DATE: JAN 15 2020

PO / BATCH NO.: P0041884
S247736

MATERIAL CERT REC'D: YES

QUANTITY RECEIVED: 19 PCS

QUANTITY INSPECTED: 19 PCS

QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.375"
THICKNESS RECEIVED: 0.375"
SHEET SIZE ORDERED:
SHEET SIZE RECEIVED:

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	AMS QQ-A-200/11
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	H/T 807235
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	WEBSTER

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: _____ DATE: JAN 15 2020	SIGNED OFF BY: _____ DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

EXTRUSION INSPECTION SHEET



TUBE #	SIDE A			SIDE B			Measurement unit		Symbol	Inches	Rockwell Reading	ULTRA SONIC MEASUREMENTS				
	TOTAL LENGTH	R1	R2	DIA	R1	R2	INSIDE DIA	wall thickness measured w/vern				Strightness at 12" in middle	LOCATION on tube	R1	R2	R3
DWG	128	2.750	2.747	2.750	2.746	2.748	2.750	2.748	2.748	2.748	2.748	2.748	2.748	2.748	2.748	
1	128.030	2.747	2.755	2.746	2.746	2.748	2.748	2.748	2.748	2.748	2.748	2.748	2.748	2.748	2.748	
2	128.015	2.743	2.745	2.751	2.751	2.753	2.753	2.753	2.753	2.753	2.753	2.753	2.753	2.753	2.753	
3	128.030	2.747	2.746	2.746	2.746	2.745	2.745	2.745	2.745	2.745	2.745	2.745	2.745	2.745	2.745	
4	128.06	2.750	2.751	2.745	2.745	2.748	2.748	2.748	2.748	2.748	2.748	2.748	2.748	2.748	2.748	
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
PART #	P/O# 041884						BATCH # 5247736						Notes:			

D6005-128P

DAS
82
9-89

JAN 16 2020

Entered: _____ Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐



Job: _____ Part No. _____		DISPOSITION Rework ☐ ☐ ☐ Scrap ☐ ☐ ☐ Use-as-is ☐ ☐ ☐				DEPARTMENT/PROCESS Skid-tube ☐ ☐ ☐ ☐ ☐ ☐ Machining ☐ ☐ ☐ ☐ ☐ ☐ Large Fab ☐ ☐ ☐ ☐ ☐ ☐ Cross tube ☐ ☐ ☐ ☐ ☐ ☐ Small Fab ☐ ☐ ☐ ☐ ☐ ☐ Finishing ☐ ☐ ☐ ☐ ☐ ☐ Eng. (Non-AW) ☐ ☐ ☐ ☐ ☐ ☐ Prod. Eng. Coord. ☐ ☐ ☐ ☐ ☐ ☐ Rec/Store/Packaging ☐ ☐ ☐ ☐ ☐ ☐ Engineering ☐ ☐ ☐ ☐ ☐ ☐ Water Jet ☐ ☐ ☐ ☐ ☐ ☐ Supplier ☐ ☐ ☐ ☐ ☐ ☐ Quality ☐ ☐ ☐ ☐ ☐ ☐																	
Date : _____		Sequence #: _____		QTY Affected : _____		MRB (QSI042)																	
Description Work Order Deviation						Disposition																	
Root Cause Operator ☐ ☐ ☐ Manufacturing Process ☐ ☐ ☐ Equip/Tooling ☐ ☐ ☐ Handling/Preservation ☐ ☐ ☐ Material ☐ ☐ ☐ Product Improvement ☐ ☐ ☐ Process Improvement ☐ ☐ ☐ Human Factors ☐ ☐ ☐						FAULT CATEGORY Contamination ☐ ☐ ☐ ☐ ☐ ☐ Misaligned/off center ☐ ☐ ☐ ☐ ☐ ☐ BOM/Route ☐ ☐ ☐ ☐ ☐ ☐ Broken/Damage/Defect ☐ ☐ ☐ ☐ ☐ ☐ Incomplete/Unclear Instructions ☐ ☐ ☐ ☐ ☐ ☐ Drill Holes ☐ ☐ ☐ ☐ ☐ ☐ Fit/Function ☐ ☐ ☐ ☐ ☐ ☐						Power Loss/Surge ☐ ☐ ☐ ☐ ☐ ☐ Folio/Program ☐ ☐ ☐ ☐ ☐ ☐ Grain Direction ☐ ☐ ☐ ☐ ☐ ☐ Weld ☐ ☐ ☐ ☐ ☐ ☐ Wrong Stock Pulled ☐ ☐ ☐ ☐ ☐ ☐ Out of Sequence ☐ ☐ ☐ ☐ ☐ ☐ Off-set/Set-up ☐ ☐ ☐ ☐ ☐ ☐						Positioned Wrong ☐ ☐ ☐ ☐ ☐ ☐ Outside Tolerance ☐ ☐ ☐ ☐ ☐ ☐ Drawing ☐ ☐ ☐ ☐ ☐ ☐ Finish ☐ ☐ ☐ ☐ ☐ ☐ Part Lost/Missing ☐ ☐ ☐ ☐ ☐ ☐ Misread ☐ ☐ ☐ ☐ ☐ ☐					
						Pressure/Forced ☐ ☐ ☐ ☐ ☐ ☐ Bending ☐ ☐ ☐ ☐ ☐ ☐ Crushing ☐ ☐ ☐ ☐ ☐ ☐ Cracks ☐ ☐ ☐ ☐ ☐ ☐ Crimp/Kink/Ripple/Wave/Twist ☐ ☐ ☐ ☐ ☐ ☐ Marks/Chatter ☐ ☐ ☐ ☐ ☐ ☐ Mislabeled ☐ ☐ ☐ ☐ ☐ ☐						Completed By _____ Lead hand / Supervisor _____ QC / QA Coordinator _____											
						Other/Details: _____																	